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Cover: Coral-bellied ring-necked snake, *Diadophis punctatus pulchellus*, Tuolumne County, California. Photograph by Stephen L. Barten, DVM.

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Notes on the Herpetofauna of Western Mexico 19: An Update to the Herpetofauna of Volcán de Tequila in Jalisco, Mexico

Juan Rubén Rojo-Gutiérrez¹, David Jaimes-Rodríguez¹, Daniel Cruz-Sáenz², Laura López-Fernández¹,
Enrique Chávez-Urbe¹ and David Lazcano³

Abstract

We conducted surveys with the purpose of expanding our knowledge of the amphibian and reptile species distributed on Volcán de Tequila. As a result of these surveys, we recorded a total of 32 species of herpetofauna, 23 of which are new records for the area.

Resumen

Llevamos a cabo muestreos de anfibios y reptiles con el fin de expandir el número de especies reportadas que están asociadas a este volcán, como resultado de estos muestreos incrementamos la presencia de 32 especies de herpetofauna, 23 de estos son nuevos registros para la zona.

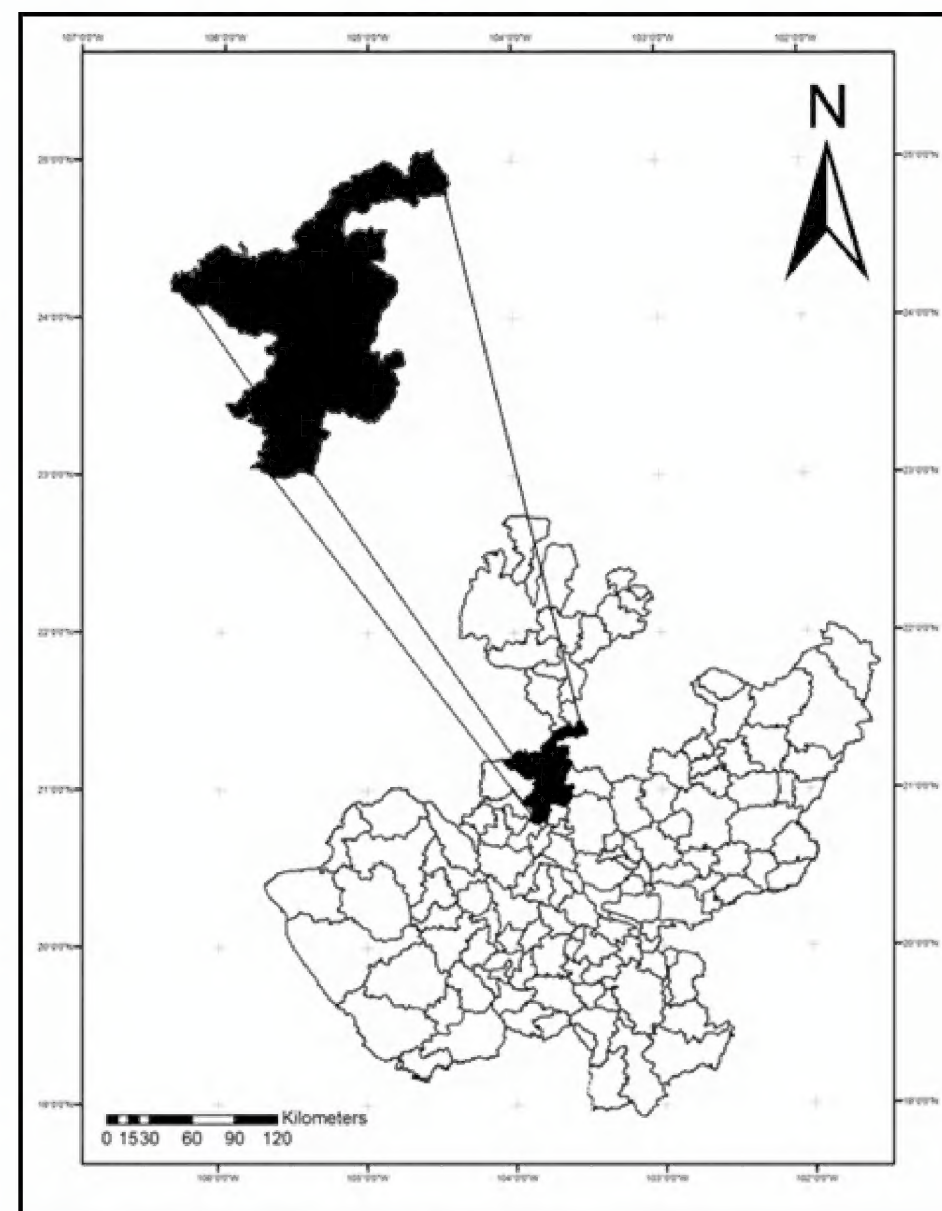
Introduction

Mexico as a megadiverse country is known for harboring a large number of wildlife species. The herpetofauna of the country is represented by 376 amphibians (Parra-Olea et al., 2014) and 864 reptiles (Flores-Villela and Garcia-Vazquez, 2014). Recently this number has increased slightly with 394 amphibians and 898 reptiles, making this a total of 1292 species (Johnson et al., 2017). This richness of herpetofauna other groups of vertebrates has generated an increasing interest in protecting these species by establishing *Areas Protegidas Naturales* (APN), which at present number 182, allocated to different categories, such as national parks, biosphere reserves, and natural monuments (CONANP, 2017). Although Mexico is recognized as one of the most biodiverse countries in the world, there are still regions lacking exhaustive studies, such as Volcán de Tequila in the state of Jalisco. The herpetological richness for the state stands as that documented by Cruz-Sáenz et al. (2009, 2017).

Volcán de Tequila is located in the municipality of Tequila, in central Jalisco between 20°45' and 20°49'N, and between 103°48', and 103°54'W. This volcano is part of Mexico's Transvolcanic Belt, one of the most herpetofaunal rich regions in the country and a boundary between the Nearctic and Neotropical regions. Volcán de Tequila is the fourth highest mountain in Jalisco at 2918 masl. It has an altitudinal gradient from 1120 to 2918 masl. Dominant soil types are ortic chromic luvisol and eutric regosol (Reynoso-Dueñas, 2010; Huerta-Martínez et al., 2014). Climate on the middle part of the volcano is classified as C(w), with mean temperatures varying from 10 to 20°C, whereas in the lower part the climate is Aw(w), with average temperatures from 17 to 27°C. Annual precipitation varies from 800 to 1000 mm, and the most humid period occurs in summer (June to October). This volcano is 50 km east of the city of Guadalajara.

A very important factor that influences profoundly the distribution of the herpetofauna is the different vegetation types and

the resources they provide to the vertebrate fauna. On this volcano the following forest types are represented: subtropical matorral (1140–1250 m), *Juniperus flaccida* (drooping juniper / *cedro liso*) forest (1250–1380 m), oak forest (1380–1500 m and 2400–2920 m), oak-pine forest (1500–2340 m) and montane cloud forest (2000–2450 m). On the highest portion of the volcano at 2920 m is a community of *Cupressus lusitanica* (Mexican cypress / *ciprés Mexicano*) (Reynoso-Dueñas, 2010; Huerta-Martínez et al., 2014).



Location of the municipality of Tequila, Jalisco, Mexico.

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Panoramic view of Volcán de Tequila. Photograph by Guadalupe Chui.

Huerta-Martínez et al. (2014) found the following dominant species from 1420 to 2918 m: *Quercus obtusata* (white oak / *encino blanco*); *Q. crassifolia* (leather leaf Mexican oak / *encino chilillo*); *Q. laurina* (lesser oak / *atlalpitzahul*); *Pinus oocarpa* (hazel pine / *pino avellano*); *Acacia farnesiana* (sweet acacia / *huizache*); *Q. gentryi* (oak hazel / *roble avellano*); *Q. rugosa* (netleaf oak / *roble de hojuela*); *Q. candicans* (red oak / *ahua-mexili*); *Arbutus tessellata* (Mexican madroño / *madroño Mexicano*); *Q. resinosa* (yellow oak / *encino amarillo*); *Q. castanea* (red oak / *aguacatillo*). Another paper (Aguilar-Peralta et al., 2016) cited *Quercus magnoliifolia* (yellow oak / *encino amarillo*) for the area.

Materials and methods

We conducted eight non-continuous surveys during August of 2016 and August of 2017 with the purpose of documenting the composition of the herpetofauna of this region. Samples were taken during the day in the following vegetation types: POF = Pine-Oak forest; TDF = Tropical deciduous forest; PF = Pine forest; OF = Oak forest; MCF = Mountain cloud forest, and G=Grassland. In our study we didn't sample the *Juniperus flaccida* and *Cupressus lusitanica* forests.

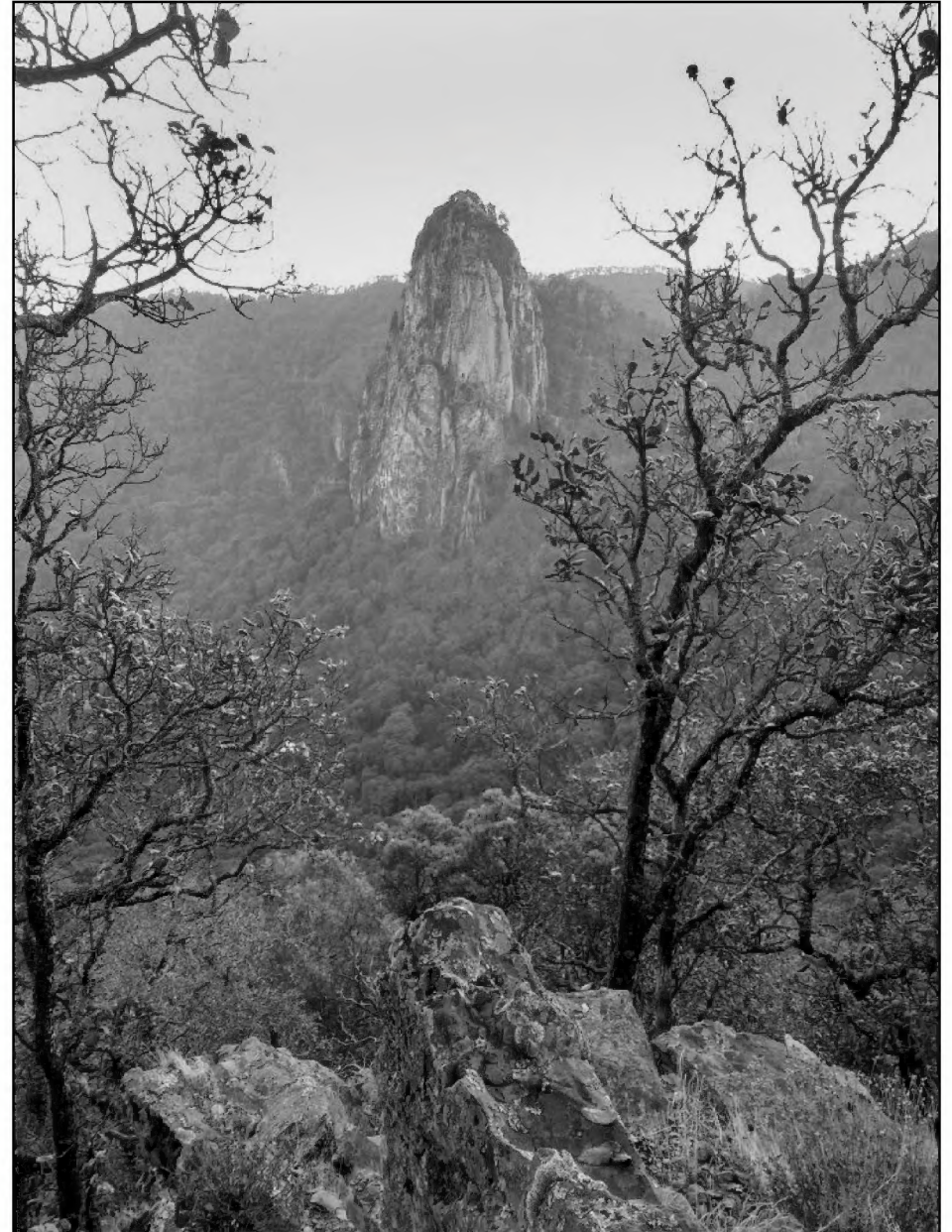
Transects varied in size because of the terrain; the purpose was only to increase the size of the checklist of the herpetofauna. We recorded microhabitat use within each type of forest, but no other ecological data..

Results

In our survey of Volcán de Tequila we observed a total 32



Crotalus lepidus. This rattlesnake species is not endemic to Mexico, but is protected by Mexican environmental law. This locality represents the southern limit of distribution for this species. Photograph by Daniel Gachuz-Bracamontes.



View of the summit of Volcán de Tequila, known as "La Tetilla." Photograph by Minerva Araceli Ramírez-Orozco.

herpetofaunal species, of which ten are amphibians and 22 are reptiles. Though we have not drawn any cumulative curve, we now add 23 newly found species, of which seven are amphibians and 15 are reptiles. Of this list, three amphibian species and 15 reptiles are under protection of Mexican environmental law (SEMARNAT, 2010). Of the 32 species reported presently, 22 (six amphibians and 16 reptiles) are endemic to Mexico (Table 1).

Discussion and Conclusions

In the future we wish to continue our survey of Volcán de



Crotalus basiliscus. This species is endemic to Mexico and is protected by Mexican environmental law. Photograph by Minerva Araceli Ramírez-Orozco.

Table 1. Species of herpetofauna recorded from Volcán de Tequila, Jalisco, Mexico. **NOM** = protection status under NOM-ECOL-059-2010 (SEMARNAT, 2010): Pr = *protección especial* (special protection); A = *amenazada* (threatened). **IUCN** = protection status according to the International Union for Conservation of Nature (IUCN, 2017): LC = least concern; VU = vulnerable; EN = endangered; NT = near threatened; DD = data deficient; NE = not evaluated. **EVS** = Environmental Vulnerability Score sensu Wilson et al. (2013a, b): L = low risk (3–9); M = medium risk (10–13); H = high risk (14–20). **Endemism**: E = endemic to Mexico. **Vegetation**: POF = pine-oak forest; TDF = tropical deciduous forest; PF = pine forest; OF = Oak forest; MCF = montane cloud forest. **Record type**: * = new; + = old. **Microhabitat**: R = refuge; LL = leaf litter; UR = under rock; T = on tree; B = bark; W = body of water.

Family	Species	NOM	IUCN	EVS	Endemism	Vegetation	Record type (old or new)	Micro-habitat
Plethodontidae	<i>Isthmura bellii</i>	A	VU	M (12)	E	POF	*	R
Craugastoridae	<i>Craugastor augusti</i>	—	LC	L (8)	—	POF	+	LL
	<i>Craugastor hobartsmithi</i>	—	EN	H (15)	E	POF	+	LL
	<i>Craugastor occidentalis</i>	—	DD	M (13)	E	POF	*	UR
	<i>Craugastor pygmaeus</i>	—	VU	L (9)	—	TDF	*	LL
Hylidae	<i>Smilisca fodiens</i>	—	LC	L (8)	—	TDF	*	T
	<i>Dryophytes arenicolor</i>	—	LC	L (7)	—	PF	*	B
	<i>Dryophytes eximius</i>	Pr	LC	M (10)	E	POF	*	LL
Ranidae	<i>Lithobates neovolcanicus</i>	A	NT	M (13)	E	TDF	*	W
Eleutherodactylidae	<i>Syrrhophus nitidus</i>	—	LC	M (12)	E	OF	+	LL
Anguidae	<i>Barisia imbricata</i>	Pr	LC	H (14)	E	MCF	+	UR
	<i>Elgaria kingii</i>	Pr	LC	M (10)	—	POF	*	UR
Gekkonidae	<i>Phyllodactylus lanei</i>	Pr	LC	H (15)	E	TDF	+	UR
Phrynosomatidae	<i>Sceloporus horridus</i>	Pr	LC	M (11)	E	OF	+	B
	<i>Sceloporus heterolepis</i>	Pr	LC	H (14)	E	PF	*	T
	<i>Sceloporus shannonorum</i>	—	NA	H (15)	E	PF	*	R, UR
	<i>Sceloporus torquatus</i>	Pr	LC	M (11)	E	POF	*	R, UR
	<i>Sceloporus utiformis</i>	Pr	LC	H (15)	E	TDF	*	R, LL
	<i>Urosaurus bicarinatus</i>	—	LC	M (12)	E	POF	*	LL
Polyichrotidae	<i>Anolis nebulosus</i>	—	LC	M (13)	E	OF	+	R, LL
Teiidae	<i>Aspidozelis communis</i>	Pr	LC	H (14)	E	OF	*	LL
Scincidae	<i>Plestiodon callicephalus</i>	—	LC	M (12)	—	OF	+	UR
	<i>Plestiodon dugesii</i>	Pr	VU	H (16)	E	POF	*	LL
Boidae	<i>Boa sigma</i>	A	LC	M (10)	—	TDF	*	LL
Colubridae	<i>Lampropeltis polyzona</i>	—	NA	M (11)	E	OF	*	LL
	<i>Storeria storerioides</i>	—	LC	M (11)	E	PF	*	R
	<i>Thamnophis cyrtopsis</i>	A	LC	L (7)	—	POF	*	R
Dipsadidae	<i>Rhadinaea hesperia</i>	Pr	LC	M (10)	E	OF	*	LL, UR
	<i>Rhadinaea laureata</i>	—	LC	M (12)	E	POF	*	R
Viperidae	<i>Agkistrodon bilineatus</i>	Pr	NT	M (11)	—	TDF	+	LL
	<i>Crotalus basiliscus</i>	Pr	LC	H (18)	E	POF	*	LL
	<i>Crotalus lepidus</i>	Pr	LC	M (12)	—	PF	*	UR, LL, R

Tequila, an emblematic symbol for the state of Jalisco and the nation. There is a great need for intensive fauna and flora studies that should include assessment of conservation status and programs. In the only previous study of the area in the past, Romero-Rodriguez et al. (2006) reported three amphibian species (*Craugastor augusti*, *C. hobartsmithi* and *Syrrhophus nitidus*) and six reptile species (*Barisia imbricata*, *Phyllodactylus lanei*, *Sceloporus horridus*, *S. heterolepis*, *Anolis nebulosus* and *Plestiodon callicephalus*), including some details on their morphology, demonstrating the need for future studies.

At this point, the 32 species found on the volcano that is 50 km away from the city of Guadalajara only represent 14.3% of the total number of species of herpetofauna for the state, 19.2% for amphibians and 12.9% for reptiles (Cruz-Sáenz et al., 2017). When comparing to other montane sites (Table 2) that have been sampled our list of species is low. This is the result of the little attention the area has received. Table 1 includes *Agkistrodon bilineatus* taken from leaf litter in tropical deciduous forest; this animal was brought into the collection at the *Centro de Estudios en Zoología de la Universidad de Guadalajara* (CEZUG 234)

Table 2. Species richness and numbers of Mexican protected and endemic species from Volcán de Tequila compared to surrounding areas in Jalisco that have been studied in the past.

Locality	Species richness	Protected species	Endemic species	Reference
Huaxtla	36	10	19	Cruz et al., 2011
Bosque La Primavera	56	17	13	Reyna-Bustos et al., 2007
Hostotipaquillo	61	21	28	Flores-Covarrubias et al., 2012
Sierra de Quila	69	17	46	Santiago-Pérez et al., 2012
Volcán de Tequila	9	2	4	Romero-Rodríguez et al., 2006
Volcán de Tequila	32	18	22	This paper

on 5 October 2005 and now is documented here.

Acknowledgments

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Barisia imbricata. This species is endemic to Mexico and is protected by the Mexican environmental law. Photograph by Minerva Araceli Ramírez-Orozco.

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Toad Stools: Part Two

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Prologue: This continues my account¹ of an impromptu study of the rococo toad, *Rhinella schneideri*, undertaken during my nearly annual trip to the Chaco of Paraguay and yearly planning for “Proyecto Tagua” the conservation program for the endangered Chacoan peccary, *Catagonus wagneri*. What follows is taken from my field notes written in November of 2016 during a ten-day-long stay.

On the evening of the 16th toads returned to the *estancia* about nine o’clock. They were again drawn to the lights and the magic attraction for insects. Tonight it was beetles, hundreds and hundreds about the size of the head of a large finishing nail, shiny, ebony black, armored creatures. It hurt to be anywhere near them as they flew and bounced and landed and crawled. It was exactly like being peppered with a small gauge BB gun, over and over again. You knew to move away from the light. It was an automatic response no doubt primal in origin, like the hair standing up on the back of your neck or jumping at a sudden loud sound. The *sapos* paid the bombardment no heed, sitting, tongues moving in and out, capturing the mini beetles as fast as they could be swallowed. I wondered what the toads felt swallowing a multitude of these living chitin covered creatures.

In the midst of this I decided I could get some additional information about these amphibian insect killers. Using a plastic grocery bag as an enlarged glove I grabbed random toads and then flipped the bag, trapping them. Using a hanging Pesola scale I was able to get accurate weights, for the *sapos* did not struggle once in the bag. Then, using the bag again as a large glove I unpeeled part of it while grasping the toad firmly with the other hand. Once half the *sapo* was exposed I took a linear measurement, from tip of nose to end of body, the snout–vent length. The *sapos* offered no resistance, as if this was an everyday occurrence. In the end I easily handled eight toads of various sizes and recorded these basic measurements, as follow:

	Weight (g)	SVL (mm)
#1	250	133
#2	410	203
#3	250	140
#4	405	152
#5	110	108
#6	125	102
#7	240	127
#8	540	159

All eight toads were in good condition; none showed any sign of injury or malformation, all appeared well nourished and no wonder.

In order not to duplicate measurements from the same animal, after handling each was released in another part of the yard, a step down and away from where I was working. The whole procedure took not more than 15 minutes!

My plan is to take the stool samples² home in my checked luggage. Taking toads is not an option. The samples may or may not get flagged and removed. If removed then we’ve had a bit of fun and learned a few things, perhaps developing a new technique for collecting samples without euthanizing or stomach flushing the toad. I’m sure the *sapo* prefers it that way. One other thing that I can do, just in case the samples get taken is to weigh them. Easy enough given that the now sun dried samples are all in the same size clear capped vial. Weigh the vial, subtract the weight of an empty capped vial and you have the dried weight of a *sapo* digested meal. After weighing I can only hope that the vials pass through various inspections in route to home.

Afterword: You might ask why I used a plastic grocery bag as a glove while handling the toads. Some will know they have a highly toxic secretion that is produced from large parotid glands on the side of the head as well as additional linear glands on the rear legs. The secretion is milky, thick and sticky and can be lethal to animals the size of small dogs that are foolish enough to try to catch and eat this toad. Humans need have no concern so long as they wash carefully after handling the toads and have no obvious open wounds or sores on their hands. No, my concern was for what every toad handler knows is a consequence of intruding on a toad by catching it. It is a life lesson for a herper. Urine, copious quantities of highly aromatic yellow tinged fluid jettisoned from the toad’s cloaca. Anyone who has had the misfortune of picking up a toad and innocently raising it to observe it closely has experienced this amphibian defensive mechanism. This adaptation serves the toad well for one’s first instinct is to turn the toad away or even to let it go. What works with humans also works with natural predators. If the urine doesn’t get you then the toxin surely will.

Acknowledgments

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1. Toad Stools: Insight into the Rococo Toad, *Rhinella schneideri*. Bulletin of the Chicago Herpetological Society 53(5):117-118, 2018.
2. Toad stool samples were weighed and measured. There were 38 vials total, each containing one stool. Dried toad stools ranged from 0.6 to 6.1 g. Toad body size and meal contents no doubt accounted for the variability.

Author's note: The following article involves a contemporary issue concerning the effect of electronic media has had on herp society memberships and book collecting. The second in a series to appear in the Bulletin of the Chicago Herpetological Society, the paper has been taken from a much larger, soon-to-be-published work titled The Dragon Traders: A Collective History of the Reptile Trade in America and the Age of Herpetoculture. The nearly 500-page book chronicles the trends, events, people, and places that were influential in the popularization of reptiles as pets, as displays in zoological gardens, and in the 20th century American show trade, eventually culminating in the arrival of the captive propagation movement.

The Digital Age and Herp Lit: An Evolving Playing Field in the New Millennium

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The number of magazines published in the U.S. rose from 5340 magazines in 2002 to 7293 magazines in 2015 (Statista.com, 2017a). Great news, right? Not necessarily. Despite the rise in numbers, the magazine industry is struggling. According to an internet statistics firm, Statista.com, the average consumer in the U.S. spent 24.7 minutes daily reading magazines in 2010, a number that fell to 18.6 minutes in 2015 (Statista.com, 2017b). Paid magazine subscription revenues fell 17% between 2005 and 2010 (Statista.com, 2017c). CBS News financial segment *Moneywatch* declared a “great extinction” of sales and marketing jobs due to the collapse of print periodicals in 2009 (James, 2009).

While reptile and amphibian ownership in the U.S. is soaring, the herp magazine niche has been writhing. Two of the most popular herp magazines in the 1990s—*The Vivarium* and *Reptile & Amphibian*—folded near the turn of the new millennium. The newest kid on the block—*Herp Nation*—fell from the slim ranks in 2016. The most successful stalwart of the lot—*Reptiles* magazine—has hit exceptionally hard times. The parent company—BowTie—known for specialized magazines geared towards the consumer pet market, fell to (among other things) the recession and declining revenues. *Reptiles* magazine was purchased by I-5 Publications around 2013.

What is remarkable was that *Reptiles* magazine was still around in 2018*. Originally started as a bimonthly nationally distributed publication in 1993, the tremendous popularity of herps during that decade allowed the periodical to quickly go monthly by December 1994. At that time Phillip Samuelson, *Reptiles* magazine editor, declared the magazine was the most widely read herpetological magazine in the U.S. and perhaps the world (Samuelson, 1994). That initial 108-page monthly issue had 122 paid advertisements (apart from the classified section), 22 of which were full-page ads. Advance two decades and the magazine was now back to a bimonthly publication format and decidedly less thick. The November/December 2015 issue had plunged down to 64 total pages, 27 advertisements, of which 6 were full-page. It's difficult to determine what the future holds for the magazine now that a considerable amount of captive husbandry content, understandably both good and bad, can now be found on the internet.

The internet has also had an influence on regional herpetological societies, some of which have paralleled the rise in popularity of reptiles and amphibians in the U.S. The Chicago

Herpetological Society (CHS), for instance, was founded at a meeting attended by 35 people in 1966. The society's first publication—known as *Reptile Review*—was changed to the *Bulletin* within the first year to reflect the rising segment of members interested in amphibians as well as reptiles (Beltz, 1991). By 1976, membership had increased to 230 and by 1986 it had 730 members. By the early 1990s, numbers peaked at just over 2000 members, a figure believed to be at least partially fueled by CHS's successful mail order book service and free classified ads, according to Mike Dloogatch, long-time editor of the society's *Bulletin* (Dloogatch, pers. comm.).

The CHS book service was discontinued by the late 1990s, to some extent because of the appearance of specialty herp book dealers like The Serpent's Tale and Bibliomania!. The arrival of Amazon.com didn't help either. Successful on-line reptile market sites like Kingsnake.com were starting to become the norm for posting classified ads. Within a relatively short period, membership numbers began to noticeably fall. By 1997, there were 1194 members. By 2000, there were 838 members. But numbers continued to drop long after the book service was discontinued. By 2010 there were 537 members. By 2016 only 434 people chose membership. Ultimately, Dloogatch feels that the internet is at least partially responsible for the more recent decline in CHS membership (Dloogatch, pers. comm.).

On par with the change in regional herpetological societies are academically based organizations. “The greatest challenges that biological societies face are funding, membership, and journal publication,” read a statement from a 2012 survey appearing in *Bioscience*, a journal published on the behalf of the American Institute of Biological Sciences (Musante and Potter, 2012). “All of the -ology professional organizations (herps, fish, mammals, etc.) have seen steady declines in membership levels,” says Bob Hansen, editor of *Herpetological Review*. “The most cited explanation,” notes Hansen, “is the availability of journals online, such as university library portals. This negates the need for students to join societies in order to access their publications, as they can do this for free as long as they are in school” (Hansen, pers. comm.).

The move from print to electronic publication and open-access completely changes the business model for many organizations, but has become a necessity in order to survive in an ever-changing environment. The three largest professional

* *Reptiles* magazine is now a division of Chewy, one of the largest online pet supply distributors.

herpetological societies in the U.S. have had significant shifts towards digitally accessed journals. For example, approximately 40% of the membership in the Herpetologists' League (HL), publisher of *Herpetologica*, was receiving online-only journal delivery by 2016 (J. Herman, pers. comm.). At the same time, the American Society of Ichthyologists and Herpetologists (ASIH), now delivers their journal *Copeia* to over 50% of their membership exclusively via the internet (P. Chakrabarty, pers. comm.) The Society for the Study of Amphibians and Reptiles (SSAR), the largest international herpetological organization and publisher of both *Journal of Herpetology* and *Herpetological Review*, has a somewhat lower percentage of membership (ca. 25%) receiving online-only publication delivery (C. Classi, pers. comm.). SSAR additionally offers many *Herpetological Review* back issues through open access, online delivery of Portable Document Format (PDF) files.

“The concept of getting and storing print journals seems outmoded,” observes Hansen, who finds that younger people are accustomed to locating what they need quickly through the internet. “A lot of really old stuff is now freely available through the Biodiversity Heritage Library online,” he adds (Hansen, pers. comm.). It’s not entirely clear, however, what may happen to *other* literature—those papers, pamphlets and proceedings that sometimes skirt the periphery of mainstream institutional holdings. There is a vast amount of information that is not on the internet and may never be, believes Breck Bartholomew, a natural history book dealer who specializes in herp literature. “This obscure information will eventually be lost (Bartholomew, pers. comm.).”

Internet entrepreneur Brewster Kahle is attempting to address some of those issues. In 1996, Kahle founded a digital library known as the Internet Archive as a resource offering free public access to historical collections that now exist in digital format. The Internet Archive also oversees one of the world’s largest book digitalization projects.

Because web pages are often fleeting—Kahle says the average lifespan of a web page is just 92 days—in 2001 the Internet Archive launched the Wayback Machine—an enormous collection of time-stamped web captures that had been collected since 1996. By 2017, Wayback Machine director Mark Graham claimed the project had already saved over 500 billion web captures in its 20-year history (Brown, 2017).

Equally concerning is what may happen to the information stored on hard drives or in the *cloud*. “I worry a great deal about that,” said internet co-founder Vint Cerf in 2015. “You and I are experiencing things like this. Old formats of documents that we’ve created or may not be readable by the latest version of the software because backwards compatibility is not always guaranteed. And so what can happen over time is that even if we accumulate vast archives of digital content, we may not actually know what it is” (Ghosh, 2015). Simply put, that information too may vanish forever.

While there is still a market for books, the dynamics of collecting and selling herp books has dramatically changed. One thing is true: few antiquarian booksellers reside in brick-and-mortar shops anymore. Yes, a couple of dealers may still do



Books, journals, papers and magazines. Photograph by the author.

business in New York City, but the streets of Chicago, Los Angeles, San Francisco, Washington D.C., Philadelphia, or Dallas are now essentially devoid of full-service antiquarian or rare bookstores says bookseller Gordon Hollis (Hollis, 2016). Institutional rare book collections have also declined and can now only be found in major university research libraries in the East—a remaining few can be found in the Midwest and California. “We have watched the decline in rare book acquisitions due to the rising costs of rare material and waning interest among younger faculty who can now use available library resources that the generation before could not,” says Hollis. “More recently, there has been a rush toward reallocation of library funds towards digital services (Hollis, 2016).”

“The collector mentality that so many people were raised with from their depression era parents is now gone and as those depression era parents are dying, no one wants their collections,” adds Breck Bartholomew on the decline of personal herp libraries. “Not only does this affect many rare and important books, but it affects all sorts of history in personal collections (Bartholomew, pers. comm.).”

Another quite unforeseen problem not associated with digital media has had a monumental impact for some in the herp book business. “Up until 2007 you could sell a lot of books,” says Eagle Mountain Publishing head Louis Porras. “For example, we published the *Biology of the Vipers* (2002) and sold well over 1000 copies” (Porras, pers. comm.).

Foreign sales were big for the Utah-based publishing firm, accounting for approximately 50% of the company’s revenue. Somewhere along the way, legislation involving surface shipping was passed, allowing postal rates to foreign destinations to skyrocket. “We published the *Biology of the Boas and Pythons* (2007) right about that time,” remembers Porras. “We had hundreds and hundreds of copies sold overseas and used to ship books fairly inexpensively all over the world by surface mail. For example, a single book going to the UK would cost under \$10 (Porras, pers. comm.).”

“Those prices overnight immediately went up to \$37.00 and continued to rise from that time,” adds Porras, who preceded to have hundreds of overseas orders canceled because of the extreme hike in rates (Porras, pers. comm.). An example of shipping rates charged by the United States Postal Service (USPS) in 2016 to three foreign destinations speak volumes, so to speak.

A rigid, four-pound padded envelope sent First Class International, the least expensive route, is now \$45.75 to Mexico, \$49.50 to the U.K., and \$50.75 to Japan. Heavier books need to be shipped Priority Mail Express International. A six-pound book delivered by this method now costs \$72.15 to Mexico, \$82.65 to the U.K., and \$92.00 to Japan (USPS website, <www.usps.com>).

“Once the bubble hit, it changed the whole perspective of how people thought about book dealing,” says Porras. “Today that market is completely gone (Porras, pers. comm.).”

There has been a 50% decline in independent book stores over the course of the last 20 years, a decrease that began with the appearance of mega-stores like Borders and Barnes & Noble. But that was nothing when compared to the arrival of Amazon.com, a marketing monstrosity that not only completely destroyed the playing field in the book business, but general merchandising as well. In 2014, Amazon’s annual sales in books alone was \$5.25 billion. Yes, that was \$5.25 *billion*. However, that was a mere drop in the bucket, just 7% of the company’s \$75 billion annual total revenue (Bercovici, 2014). Amazon markets everything from toasters to electronic media, “rivaling Walmart as a store, Apple as a device maker, and IBM as a data service provider,” says Bloomberg Businessweek author Brad Stone (Stone, 2013).

Amazon has created a very successful marketing strategy by

forgoing profits while enduring slim margins—offering books for far below suggested retail and weathering the storm, knowing it will drive out competition. It equally drives a hard line in negotiations with publishers who are forced to give Amazon huge discounts if they want to be able to market their books on Amazon.com. The larger firms like Random House give a reported 53% discount while smaller companies may have to cough up 60% or more. It was reported that Brooklyn-based publisher Melville House attempted to resist pressure by Amazon in collecting an additional discount in 2004. The company soon noticed its “buy” buttons had been removed from Amazon’s website. Melville House eventually had to cave in, and its “buy” buttons were reinstated. Today, Amazon.com is Melville House’s biggest customer. Dennis Loy Johnson, Melville co-publisher conceded “they make buying so easy. It’s impossible to resist (Robinson, 2010).

The used book market on the website is cutthroat as well. “Amazon allows used book sales on Amazon.com, but again takes 20% or more of every sale and offers set postage rates that are often lower than the cheapest postage available for the individual book,” says Breck Bartholomew. “By allowing anyone to sell a used book on Amazon.com, Amazon has created a market where individuals just want to get rid of their copy, and since they are not book dealers, they don’t care what the price is. Thus, you see a lot of books on Amazon for \$0.01 + postage” (Bartholomew, pers. comm.).

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Deputy Louie

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Until roughly five years ago, the places that I favored most for herping were playgrounds for the lawless. The series of roads that interconnected were all rugged dirt roads that discouraged nearly everybody from driving on them. This included the police. Hence, for over 20 years, I drove these roads without regard for any laws or fear of law enforcement. To say that I took liberties would be a vast understatement. At times, wild road-cruising parties in the back of pickup trucks would occur on these roads. Had we been pulled over, we *all* would have gone to jail. Those days are over now. We dare *not* do what we used to. If we are going to party in the wilds of Arizona, we camp, and do not road cruise. Most would say that is for the better. We don't think so. Even as late as the mid-1990s, Arizona had lenient laws that allowed for one to have an open bottle of beer in the vehicle to swill at one's leisure. That all changed in a hurry! During my professional development in the art form of drinking and driving, for over 20 years, nobody got hurt, there were no accidents, and everybody always got home safe. But maintaining a drunken 20-year safety record is *not* going to gain one any brownie points from a court of law. To even suggest it in a courtroom would require outstanding ducking skills, as the air would be full of flying books. As a result of a few bad actors, some extremely intolerant, freedom-impacting laws were generated. At one point, I considered starting an organization called "DAMM" (Drunks Against Mad Mothers), but came to my senses. These days, I comply with the rules of the road—not out of respect for these laws, but out of fear of jail. When all is said and done, I sure do miss the days when there were no cops on *my* backroads.

The cops began to appear on *my* roads at the same time that civilization began moving northward from Tucson. Pinal County became the fastest growing county in Arizona. A few of the dirt roads were eventually paved, which in turn led to the improvement of the connecting roads. Some of these roads were two-track jeep trails when I first started driving them. Now, several are paved and have houses lining the entire length of both sides. To be sure, there are still some good roads left to cruise, but that is only because I have always reinvented routes to include roads less traveled. In any case, I behave myself now—simply because I must. Now I got cops on *my* roads!

Speaking of cops on *my* roads, I first met Deputy Louie as the result of a phone call that I made to the Pinal County Sheriff's office on 27 June 2006. That's right—I called down the thunder on myself! This extreme act was inspired by an abandoned pickup truck left parked across a favored jeep trail of mine. It completely blocked this trail, and it was a road that I drove as a big part of my radio tracking. It saved me miles of hiking. The first time I saw this truck was at night, and it scared me. Our plot was a lawless one, and the drug smugglers were starting to use it. Surprise meetings at night are seldom a pleasant affair. The last thing in the world that one wants to have happen is to come across a drug deal while alone, unarmed, and in a place where you can scream and nobody will hear you. I did not immediately contact the cops. But every day I was out there,

that truck was still relentlessly blocking my route. I finally waxed bold enough to investigate it. The keys were in the ignition. I could have fired it up, and moved it out of the way myself. But I didn't want any further part of it. I wanted that truck gone—the sooner, the better. And for all I knew, that truck was already being watched. I could imagine starting it up and having a SWAT team jump out of concealment to nail me for far worse than anything I ever did on my own.

And so, I made the call. I gave the dispatcher from the Pinal County Sheriff's Department specific directions as to exactly where the truck was located. In doing so, I gave my directions using mileages and the cardinal directions of north, south, east and west to direct her to it. It was really just one turn south off the main drag. The woman then took down my name and phone number, and promised that a deputy would be in touch as soon as possible. Sure enough, "Deputy Louie" called me about an hour later. He was on the correct road, but going in the wrong direction. When I told him to turn around, he snapped at me in a humorous fashion. In a peeved tone of voice, he told me to *never* give any dispatcher such directions as north or south, because "these women don't know their asshole from their elbow about north and south." I laughed at this, which he seemed to appreciate, and things lightened up between old Louie and me. I will even say that despite everything you are about to read that developed between us, I always liked him. He was definitely what you might call "a character." About two hours later, Deputy Louie called me to inform me the truck was gone. He then proceeded to tell me that the truck was that of a known smuggler, who probably left it for some illegal aliens to use for whatever evil purpose they might be concocting. That should have been the end of my association with Louie, but sometimes even the most accidental encounters serendipitously build into some truly incredible events.

The first time that I actually met Louie was roughly 16 months later, on 3 February 2008. I was just making a right turn from a remote jeep trail onto a wide gravel road. Just as I was entering said wide gravel road, a massive Pinal County Sheriff's Department SUV swung around the bend. The cop behind the wheel hit his lights, and as I now traveling straight toward him, I pulled up so that our driver's side windows were aligned. We both ground to a halt. I rolled down my window, he rolled down his. We both remained seated. I was looking at a balding, bulldog of a man in his early 50s. His piercing blue eyes peered out at me through shooters sunglasses that were of a yellow tint on the lenses. My view of him was only from the chest upward, but I could clearly see his badge and name tag. The first name was "Louie," and his last name will go unmentioned in this article. He was the same guy I had spoken with to get that truck moved.

"Been hunting today?" asked Deputy Louie.

"Nope!" came my response. Wrong answer! And now I must take a deep breath and explain why "nope" was the wrong answer. The jeep trail that I had just turned from was State Trust land. While State Trust land is actually public land, it is land

that is reserved exclusively for people to hunt upon. It is managed by Arizona Game and Fish, who defer a certain amount of money from hunting license fees to provide administration. In order to enter State Trust land, one must possess a valid Arizona Hunting License, and be in the act of hunting to enter. While I had the hunting license, saying “no” to actually being in the act of hunting technically made it illegal for me to be there. More on this as the story develops.

“Well son, I’m going to have to write you a ticket. You can *not* legally be on that land without actively hunting.”

As I had just finished a four-beer transect looking for herps on this State Trust land, I did not wish to be overtly antagonistic to old Louie. Nor did I wish to start any lengthy discussions with him about being the guy who helped him find that abandoned truck on my study plot. What I said instead was:

“Well sir, I have a scientific permit that allows me to be on State Trust land. It is a permit sanctioned by the Arizona Department of Game and Fish, and it specifically states I can enter any of these lands legally.”

“Do you have a copy of that permit handy?” asked Louie.

Through a very lucky quirk of fate, my backpack was lying with the big pocket unzipped on the seat beside me. (That same backpack was now covering the open bottle of the elixir of the most interesting man in the world that stood upright in the drink holder of my truck). Nestled inside that open pocket of my backpack was a clipboard with my permit neatly displayed. I fished the clipboard out of that pocket, and handed it to him through our mutually open windows.

Old Louie studied this a while and came back with “This is not acceptable . . . but I am going to let you go today. You need to go to the State Trust land website and bone down on the rules, son.” (He kept calling me “son,” even though I was at least five years older than he.) “If you are not actively hunting on these lands, you *must* have a letter from the State Trust Commission that gives you permission.” I thanked him courteously, and as I pulled away he yelled out “You be sure to look up those rules, son! The next time, I *will* be giving you a ticket!”

I of course researched everything Louie told me that day, and he was dead-assed wrong. In response to my inquiries, Tom Jones, the state herpetologist for Arizona Game and Fish, wrote me a concise email to print out and put on my clipboard, under my permit, for my next meeting with Louie. It was a rather nasty piece of insolence from one law enforcement official to another, and I prayed the day would never come that I would have to show it to old Louie. In the meantime, I learned to answer “yes” to the hunting question. “Yes officer, I am hunting snakes,” and “yes officer, I have a hunting license to legally do that. Yes officer, here are my snake tongs and yes officer, go back to your doughnut shop—snoop!” The laws are extremely ludicrous in this regard. It’s perfectly okay with game and fish if I am entering their land to kill or collect something, but not so if I am just hiking, researching or photographing nature. Where game and fish and hunting licenses are concerned, “Thou *shalt* kill.”

While this column was not intended to be a commentary about stupid laws, they seem to keep coming at me in the process of writing my little cop story. Apparently, cops and laws are as closely associated as cops and robbers. The next stupid law to

be discussed was the “show us your papers” law. We speak of Arizona SB 1070, which took effect in the year 2010. The law basically allowed the police to request proof of citizenship from anybody involved in a suspicious activity. The outcome of this law was not entirely what the lawmakers expected, as it provided the police with an excuse for racial profiling. For example, if a cop sees a bunch of white folks gathered on a street corner, 99 times out of 100, they all carry a driver’s license in their wallets. It is a waste of their time to bother them. If a group of people with darker skin are assembled on the same street corner, the cops invented some reason to ask them for their identification papers. “It appears that you are five Mexicans out on a sunny day. Show us your papers.” SB 1070 was wildly unpopular with everybody who was *not* Caucasian, and people of *all* races gathered together in mass protests. Black, Brown, Yellow and White united to lambast the lawmakers for their errant thinking.

In April of 2010—one week after SB 1070 was created, by purest of coincidences I happened to be watching a news broadcast that did a segment on my pal Deputy Louie. He had been wounded in a shootout with drug smugglers. The incident occurred just south of Interstate 8, in the midst of a well-known smuggling corridor. The story was that Louie saw a group of “undocumented workers” (the current euphemism for illegal aliens) heading north while carrying massive backpacks. As I have seen this sight many times myself, the story sounds plausible. As he was reporting his location to headquarters via a cell phone, gunshots were exchanged, along with Louie’s proclamation “I’ve been hit!” At that point, it is assumed he dropped his cell phone, and a prolonged battle of sorts seemed to occur. The cell phone picked up the sounds of a gunfight being waged all around it. When all was silent for a while, Louie came back on the phone, and reported his exact location. In came the choppers, Louie was rescued, but a thorough search of the area produced no sign of smugglers, save for spent cartridges scattered all over the desert. Louie’s boss, the Sheriff of Pinal County, proclaimed that this battle could *not* have occurred at a better time, as it clearly revealed the importance and necessity of SB 1070. How convenient! I now know far more than is needed about what *really* happened in that remote stretch of desert. But at the time, all I knew was that Louie was in a gun battle with drug smugglers, and took one for the team in the process. In a way, he was my hero.

We now flash forward to 11 September 2010. At 1830 hours, I was racing down a favored stretch of a curvy, paved road, when I spied a nondescript beige-colored minivan of recent vintage in front of me. This vehicle was traveling *ponderously* slow, well below the posted 45 mph speed limit. Meanwhile, I was moving at 70 mph, and closing in fast. The driver of the van appeared to be driving like an idiot tourist. During the brief time I was bearing down on him, he slowed even more, and twice acted like he was going to veer off the road to let me pass. Without hesitation, I floored my nearly brand new 2009 Toyota Tacoma, and roared past him like he was standing still. I did this on a curved section of road, which was plainly marked with the double yellow “no passing zone” stripes. As soon as I zipped around him, I checked my rear view mirror. The van was suddenly gaining on me, and was ablaze with every possible light accessory available to modern police vehicles. I had just passed a cop in an unmarked police van, was traveling nearly twice the speed limit, and had

crossed the double-barreled yellow center line stripe in the process! They *shoot* people for less than this in Arizona.

There were two options: try to outrun him, or pull over and face the music. I wisely opted for the latter course of action and pulled over. I observed the cop getting out of the van with his hand on his holstered pistol in the classic pre-combat stance.

“*Let me see your hands!*” he roared as he continued to advance in his crouch. He swept to my left across the road to get a better shooting angle if necessary. My window was already rolled down, and my driver’s license was already displayed in one of the hands that were obligingly thrust out of said window. As he got closer, I could read his name on his badge. But I had already recognized him. It was my old pal Deputy Louie. The next words out of his mouth were “That’s a 500 dollar ticket coming your way, son!” He next asked if I had been drinking, which (thankfully) was not the case. He then asked for my insurance and registration papers, which were promptly produced. He then told me to stay put and keep my hands out the window while he investigated me further. I had less time to think of what I would be saying next than I expected, for he was soon approaching my vehicle again.

“All right then, son. You say you’re not drinking. Then why are you driving like a goddamn maniac?”

“Dammit Louie!” came my response, “I was driving like a maniac because you were driving like an *idiot* tourist! I don’t have time to get stuck behind *idiot* tourists on *this* road. By the way, I’m glad to see that you survived your gunfight ok.”

At this, a surprised and amused look swept across his visage. Then his eyes squinted, and he stared straight into my eyes. “Do I know you?” he asked.

“Well sir,” came my response, “You might not remember me, but I am the guy who told you about the truck that was abandoned on a road near here. You told me ““never give north or south directions to women dispatchers, because they don’t know their assholes from their elbows when it comes to north or south.””

It worked! At this, he gave me a friendly nod, laughed out loud, and handed me my license and paperwork back. He said “You, sir, are a friend to law enforcement, and I’m going to let you go. But you *do* need to obey the laws on this road from now on because I am going to be watching you!” And that was it! He went back to his vehicle and got in. I tried waving him ahead of me, but he flashed a toothy grin, shook his head, and indicated that he wanted me to go first. As I was now in the mode of “do whatever Louie says,” I obliged. He was soon out of sight in my rear view mirror, but I had no doubt that he was still coming along behind me.

A few minutes later, a large adult male Diamond-backed Rattlesnake (*Crotalus atrox*) was viewed lying across the center-line of the road. He was briskly crawling from the right to left lane. I pulled off the road to admire him, but then the snake made a fatal mistake. Instead of continuing on his way, he rose into a defensive position, and began rattling. I instinctively knew what would happen if Louie came by. I hastily got out of the truck, grabbed my Whitney snake tongs out of the bed, and began to hoof toward the snake. It was my intention to quickly move him to the side of the road, dump him, and then continue

on my way. I was standing in the road, looming above the snake and about to make the grab, when Louie arrived. He pulled in behind me, and rolled down his window.

“Whatcha going to do with him?” Louie asked.

“I’m just going to move him off the road.”

“Now *that* I gotta see.”

“Nuthin’ to it,” I said as I grabbed the snake near the midsection with my tongs.

“Whoa—that’s cheating!” came Louie’s next remark. “I want to see you move it with your bare hands!”

“If I did *that*, you would have to arrest me!”

“What for?”

“For being *really* stupid!” Without further dialogue, I walked the irate snake across the road, and flopped him to the ground on the shoulder. It crawled under a creosote, and began to rattle profusely.

“Wow!” Louie exclaimed. “That snake is really pissed.”

“Yeah? Well, he’ll calm down in a little bit.”

“You got that right! I’m going to calm him down permanently!” As he uttered these words, he got out of his van and poised himself about 10 meters away. Before I could react to this, he pulled his Glock 9mm automatic pistol from its holster, told me to cover my ears, and blasted off a round. **BLAM!**

“Only one shot?” I asked of him.

“There’s only one snake!” came his response. Sure enough, the bullet had blasted a hole straight through the vertebrae of the snake, roughly six inches behind the head. The snake was gyrating in his death throes, but may still have been alive.

“What did you do *that* for?” I remonstrated. “That snake was no danger to you.”

“You don’t understand, city boy!” he scoffed. “The ranchers out here are my friends, and these things bite their cattle all the time.” I was in a state of shock, and couldn’t think of anything to say. I could only come up with:

“My daddy taught me to always finish the job if I shoot something.”

The conversation would have continued, but suddenly, a hopped up, shiny black Trans Am rounded the bend in the road, jetting by the two of us at about 120 mph. Louie was now in cop heaven, and was finished with both the snake and me. He brusquely stated “I gotta go now,” and off he went in high-speed pursuit. I still had my snake tongs in hand. I used the lower pointed fork end of the tongs to grind that snake’s head into the gravel, pulled out my Swiss army knife, and decapitated him. I could not believe what had just happened, but was powerless to do anything about it. I drove off, eventually passing by Louie and the Trans Am. Deputy Louie had the guy spread-eagled over the hood of his car, and was merrily frisking him while reciting him his Miranda rights. Deputy Louie was leaving a trail of destruction and depression in his wake this evening. One guy was about to be cuffed and stuffed, and the other was in shock over the senseless killing of a rattlesnake. It was a bad day for both of us.

Of course, I emailed the whole story to some of my rattlesnake aficionado buddies the next day. I told them Louie's full name. One of the people emailed was Gordon Schuett. Less than a week later, Gordon arrived at our study plot and handed me an issue of the *Phoenix New Times* magazine. On the front page of this magazine was a hilarious full-color caricature of Deputy Louie. The image was an exact likeness of the man, except that his nose extended outward about 12 inches away from his face. It looked like a broom handle coming out from between his eyes. Underneath the caricature were large orange letters that spelled out the word "Pinalcchio." This was a clever combination of the word "Pinal" for Pinal County, with the "cchio" added in reference to Disney's famous cartoon puppet "Pinocchio." (As some may not remember, Pinocchio's nose grew every time he told a lie). The person who wrote the accompanying article was a crack Hispanic investigative reporter by the name of Paul Ruben. Mr. Ruben did not pull any punches. He had thoroughly and carefully investigated the whole story of the gun battle between Louie and the smugglers, and presented some very convincing arguments as to why he thought the whole thing was staged. The most convincing pieces of evidence that he presented were some close-up photos of Louie's gunshot wound, as well as his bulletproof vest. The wound looked as if it had scraped some skin off the side of Louie's lower back, and the vest had powder burns smeared across it. It looked exactly like it was a self-inflicted wound. Many other elements of the story didn't add up. Louie made his final mistake by allowing a second interview with Mr. Ruben. In this interview, Louie suggested that some Mexican smugglers had offered to kill Mr. Ruben in exchange for some favors. Louie was fired shortly after. He was not fired for his alleged invention of an altercation with the drug smugglers, but rather, for not arresting those who made the threats against the reporter!

As much as I hated Louie killing that rattlesnake, I can't say that I am happy over him losing his job. Truth be told, I'm rather sad about the whole mess. The tragedy of what is going down at our borders is very real, and has grown even worse the past couple of years. I do think that we as a nation should yank that sign that hangs on the Statue of Liberty. The sign that we speak of is from Emma Lazarus's *outstanding* and heartfelt sonnet "Give me your tired, your poor, your huddled masses yearning to breathe free..." What a bunch of hypocritical bull-shit that is! We should hang a new sign that says "Give me your rich, your best educated, and keep the rest. We don't want any."

I can do nothing about the poor folk who are trying to find a better life. I can also do nothing about the extreme hatred of *all* snakes in this country of ours. The hatred and fear of rattlesnakes, in particular, is something that will never change. This author can't tell you the number of people who, when they find out that I like rattlesnakes, immediately want to tell me of the ones that they have killed. I usually treat these people with the instant contempt that I feel for them. "Yeah, sure. Just kill 'em all! I can always find another passion." I don't understand people who are blessed to live close to nature, and are offended when it comes calling. When I find a rattlesnake in my yard, I rejoice! With others, it is killed, or removed. Fear of children or pets being bitten is usually the thinking of those involved. I once had a woman who rehabilitated wildlife tell me she killed every

rattlesnake that she encountered on her property. This was at an Earth Day function, where thousands of people had gathered to celebrate our love of nature and the planet. When I asked this professed savior of wildlife why she killed them, she pointed to her blind dog. Apparently, the dog dug a rattlesnake out of the ground, and was bitten in the right eye. Then it was blind in one eye. A month or so later, it dug up *another* rattlesnake, which bit it in the left eye. Now it was blind in both eyes. I told the lady "For the first bite, shame on the snake. For the second, shame on the dog!" She wasn't too happy with my opinion of the matter.

The story of cattle being bitten by rattlesnakes is one that I consider with a shrug and a "tough shit." If you run cattle on wild lands, you accept that risk. The man who ranches my old study site, Joseph Goff, claims that he has never had any cattle die as a result of a snakebite. He always pursued the philosophy of "live and let live" in his approach to ranching. I wish we had more ranchers like him.

I am very aware of the fact that when I point a finger at someone, three more point back at me. That being said, many researchers who profess the love of snakes do nothing to change the public's perception of them. They often take a dim view of those who *do* try to take their "save the snakes" message to the public, often calling them tree or bunny huggers. In 1998, I went to a rattlesnake roundup in Alamogordo. There was a small group of people demonstrating against roundups at the gate. When I asked one of these protesters if he was a snake lover, his response was "No. Snake lovers aren't interested in our cause. We are here because we feel it is morally wrong to treat *any* of our wildlife in this fashion." Snake lovers aren't interested in their cause? That sounds about right to me! We may be interested, but not enough to join them in making a stand.

Lastly, I am disappointed with myself. Not standing up for that rattlesnake when Louie drew his pistol was the disgraceful act of a coward. I should have put myself between the snake and that pistol. But I *did* learn something here. In October of 2014, I was put in a very similar position with a fat, sassy and very pregnant Mojave Rattlesnake. It was on a dirt road, miles from any human habitation. When two local people came by and saw me photographing it, they wanted to kill it. They said that they worked on a ranch nearby, and this snake was a threat to both them and their livelihoods. I told them I wanted to take this snake home and keep it. This satisfied them, and I bagged it and drove off. I set my odometer to zero, drove away for exactly two miles, turned around, drove it back two miles to its place of capture, and released it. I wish I would have thought of this with Deputy Louie!

At least I have a plan for the next time that things seem to be going badly for a wild snake of any kind. Passing this plan on to the readers is one of the purposes of this article. Claim you want it, bag it, and come back when the coast is clear. It's risky, and is entirely your call. In my opinion, it is better than standing in front of a loaded pistol, or the feeling of shame that follows when you lack the courage to do so.

This here is Roger Repp, signing off from Southern Arizona, where the turtles are strong, the snakes are handsome, and the lizards are all above average.

What You Missed at the July Meeting: Daniel Parker

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I've been attending meetings for about 20 years. Never has a speaker started with a song. Until July. Daniel Parker treated us to a short sample of his classically trained voice and the audience erupted in applause. Legitimately deserved because he's got a great voice. He plays and sings in a couple of bands, as does his wife Lisa. He was a music major in college. He was responding to a bit of dialogue early in the meeting but it was a treat to hear his voice. And his talk, of course.

From our website:

Daniel Parker is a biologist with University of Central Florida (UCF) and DRMP. He is also the owner of Sunshine Serpents (www.sunshineserpents.com). Through his company he guides reptile-themed eco tours, gives educational presentations, photographs herps, assists with TV and film production, and breeds captive reptiles. Parker's photographs have appeared in *Reptiles*, *Reptilia*, and *Herp Nation* magazines as well as numerous other publications worldwide. His biological interests have involved diverse species. These include indigo snakes, gopher tortoises, sand skinks, Florida black bears, and many established exotics such as the Burmese python. Parker hopes that his work has helped to promote an increased understanding of Florida's natural environment and the wildlife that lives there.

While he is certainly a talented singer, it's obvious that he has other attributes. I can add to the above that he is an exceptional field herper and companion because I had the privilege of spending an afternoon roaming places in southern Alabama with him on a sunny summer day a few years back. But he hadn't come to our meeting to sing. His talk was titled, "The Road and the Forest: The Wildlife of a Historic Natural Area of Central Florida and the Road That Divides It."

For several years Daniel worked on an interesting research project for the University of Central Florida that was contracted by the Florida Department of Transportation to determine the



Daniel and Lisa Parker. Photograph by Dick Buchholz.

effects on wildlife of widening a two-lane road to four lanes. State route 40 in central Florida runs through the Ocala National Forest, Marjorie Harris-Carr Greenway, and Silver River State Park carrying 10,000 to 15,000 cars each day. Daniel's job was to determine what animals were in the area and what impacts the current road and future construction may have on the wildlife. He started his talk with a little background on the area. On maps he showed us the location of the two ridges spanning the study area, explaining that a ridge in Florida might only be 100 feet above sea level. That small difference in elevation makes a huge difference in habitat, allowing for totally different communities of plants and animals.

The western end of the study area included Silver Springs, the world's largest limestone artesian spring and one of Florida's first tourist attractions. Daniel gave us a brief history of the springs,

showed photos from its early development and talked about Ross Allen's Serpenterium. We saw photos of some of the wildlife that called the springs home, including a baby loggerhead musk turtle (*Sternotherus minor*). Who doesn't like pictures of baby turtles? He also had pictures of the rhesus macaques that have become established in the area, giving us a little history of their lives. A photo of the creature from the black lagoon showed that there may be other nonnative animals



Every talk needs a baby turtle. Loggerhead musk turtle. Photograph by Daniel Parker.



Wild monkeys in Florida? Yep. Rhesus macaque. Photograph by Daniel Parker.



Barking treefrog (*Hyla gratiosa*) in prime habitat. Photograph by Daniel Parker.



Sometimes traps bait themselves. This unfortunate golden mouse lured an eastern ratsnake (*Pantherophis alleghaniensis*) into one of Daniel's traps. Photograph by Daniel Parker.



Big road. Little victim? Hopefully not. Gopher frog (*Lithobates capito*). Photograph by Daniel Parker.



Even at a young age they can act. A baby eastern hognose (*Heterodon platirhinos*) playing dead. Photograph by Daniel Parker.



How does one mark an eastern glass lizard (*Ophisaurus ventralis*)? Daniel found an interesting solution. Photograph by Daniel Parker.



You have to look carefully in and under the trap. Pygmy rattlesnake (*Sistrurus miliarius*). Photograph by Daniel Parker.



Paedomorphic striped newt (*Notophthalmus perstriatus*). Photograph by Daniel Parker.



Guarding a kill from other human scavengers. Photograph by Adam Casavant.

residing at the springs.

He then focused on his study and the animals involved. A really nice picture of a diamondback rattlesnake (*Crotalus adamanteus*) filled the screen. Though common in the forest they were rare near the road. The researchers were disappointed when they didn't find any pine snakes (*Pituophis melanoleucus*) or indigos (*Drymarchon couperi*) but there were certainly plenty of other interesting animals. We saw neat photos of paedomorphic striped newts (*Notophthalmus perstriatus*), and a northern Florida swamp snake (*Liodytes pygaea pygaea*), a peninsula mole skink (*Plestiodon egregius onocrepis*) and a Sherman's fox squirrel (*Sciurus niger shermani*). Daniel continually accompanied his photos with interesting natural history comments. Florida herpers call October Hogtober because that month is when they see the most hog-nosed snakes (*Heterodon* spp.). The fox squirrels have huge home ranges. The indigo snake has a strong bite. They can crush baby gopher tortoises (*Gopherus polyphemus*.) Florida kingsnakes (*Lampropeltis getula floridana*) are disappearing from inland Florida, even in prime habitat, but still seem to be hanging on in the coastal areas.

Road kills were illustrated with pie charts. The one covering herpetofauna showed a pie mostly of frogs (56,208!) and a .6% sliver for other herps including snakes, turtles, crocodilians, and lizards. We saw shots of dead bears and dead raccoons. One photo was of Daniel guarding a deer carcass while a vehicle was being retrieved. Fresh deer road kills are quickly picked up by the local people. Daniel said he felt like a lion on the Serengeti guarding an antelope carcass from the circling hyenas.

We had photos of drift fence installation (tip: use a powered ditch digger!) and some of the many animals trapped. It's important to check under the traps and under the water bowls. He spoke of the difference between the total destruction of the traps by raccoons that seemed intent on destroying the traps and the bears who merely seemed to enjoy playing with traps. Road kill art is the image left after a carcass had been sprayed with non-toxic paint to mark it as counted and then washed away leaving an interesting silhouette. Daniel talked of how much he learned about animal tracks when surveying the plowed side strips that they laboriously set up along the road. We saw the setting up of hair snares, his least favorite task, and pictures from the camera traps that supplemented the barbed wire showing coyotes, deer,



Daniel's favorite survey subject, Nellie. Florida box turtle (*Terrapene carolina bauri*). Photograph by Daniel Parker.

wildcat, and bear. He threw in a turkey for good measure.

We learned about radio tracking gopher tortoises (boring) and box turtles (*Terrapene carolina bauri*), one of which he named Nellie after his grandmother. The tortoises didn't move much but some of the box turtles moved nearly two miles. Fortunately, box turtles seemed to only use underpasses to cross the road. Wild hogs are a problem everywhere in the Southeast, but box turtles may actually benefit from the hogs' habitat destruction. Daniel found a positive correlation between hog disturbance and box turtle presence.

During the years working on the main study he was able to incorporate other studies including his box turtle study. He clipped ears of dead raccoons and showed a photo of Jen Stabile (past speaker for your society) swabbing frogs looking for *Batrachochytrium dendrobatidis*.

The results of his study:

- 63,000 roadkill observations
- 27,000 animal tracks
- 14,000 drift fence captures
- 164 hair samples
- 1800 GPS locations on 28 telemetry subjects

The best result of his studies is the plan for several under- and overpasses that will allow animals to safely cross the new four lane road.

Aa always, my writings cannot cover all of Daniel's presentation. You'll have to ask him what he thinks is the cause of the kingsnakes' decline. Why roads are particularly devastating to indigos. Why he is one of the only people to see a short-tailed shrew alive. The latest way to mark legless lizards. We learned all that and more. We saw terrific photos of barking treefrogs (*Hyla gratiosa*), mud snakes (*Farancia abacura*), scarlet kingsnakes (*Lampropeltis elapsoides*), and short-tailed kingsnakes (*Lampropeltis extenuata*). He gave an interesting, informative, entertaining, and colorful talk full of rich humor and neat tidbits. At dinner after the meeting we enjoyed continuing the conversation with Daniel and his wife Lisa.

All of that, and the man can sing too. What you missed in July.

Herpetology 2018

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

CLAWED FROG FORAGING STRATEGY

C. J. Michaels et al. [2018, The Herpetological Bulletin 143:1-6] note that aquatic predators must forage for prey in a complex three-dimensional environment where the availability of different prey types with different spatial niches may vary. Aquatic predators have evolved a number of ways in which they may respond to this variation, including phenotypic adaptation and behavioral modulation. The authors investigated whether clawed frogs (*Xenopus longipes*) can modulate their foraging behavior in response to benthic (bloodworms) and pelagic (glassworms) prey species to which they had already been exposed, and whether any response would be elicited by chemosensory prey cues alone. Frogs responded to the presence of prey items by foraging more than in a control treatment (no cues at all) and were able to respond appropriately to prey type, foraging more in the water column for glass worms and on the aquarium floor for bloodworms. This effect was maintained in a second set of trials where frogs were exposed only to the chemosensory cues of the same prey items. These data show that *X. longipes* can modulate its foraging strategy to match the type of prey available and that this behavior is at least in part informed by chemosensory cues.

HORNED LIZARDS IN THE ABSENCE OF PREFERRED PREY

S. Ramakrishnan et al. [2018, Journal of Herpetology 52(1):79-85] note that habitat loss, land-use transformation, climate change, and biological invasions all elevate the importance of plasticity in food selection for the continued persistence of dietary specialists. Horned lizards (*Phrynosoma* spp.) are myrmecophagic specialists and the abundance of ant prey make their populations vulnerable to habitat loss, as well as invasive ants and associated pest control programs. The authors studied ant use by *Phrynosoma cornutum* (Texas horned lizards) on an insular urban reserve in central Oklahoma that was bereft of harvester ants (*Pogonomyrmex* spp.), presumed to be their chief prey. The five most commonly available ant genera based on bait station captures were *Monomorium* (69%), *Forelius* (11%), *Pheidole* (10%), *Crematogaster* (7%), and *Tapinoma* (2%). Based on the examination of 124 scat samples from adult and juvenile *P. cornutum*, *Crematogaster* (81%), *Pheidole* (12%), *Formica* (6%), and *Monomorium* (1%) were used as prey. Consumption of prey in several ant genera by *P. cornutum* disproportionately to their availability was related to ant mass and presumed nutritional value. Among juveniles, gape size did not influence *Pheidole* use but may influence *Formica* use. The authors suggest that *P. cornutum* are adaptive ant specialists whose populations might be maintained in habitat fragments without harvester ants as long as abundant medium- and large-sized native ant communities are present. Therefore, urban reserves, when effectively managed for native fauna, can conserve declining native species by serving as habitat havens in an otherwise unsuitable landscape.

INNATE RESPONSES IN INDIGO SNAKES

S. M. Goetz et al. [2018, Herpetologica 74(2):152-158] note that the ability to discriminate among potential prey is basic for predators making foraging decisions, as well as for the evolution of food preferences. Eastern indigo snakes, *Drymarchon couperi* (EIS), are federally threatened and considered dietary generalists, but qualitative evidence indicates that snakes are consumed more often than other prey types. In this study, the authors used a repeated-measures tongue-flick assay to investigate EIS response to prey scent experimentally, and made inferences about potential preferences. Hatchling EIS responded more strongly to scents from snakes as compared to their response to scents from mice or controls. Moreover, hatchling EIS discriminated between the scents of representative colubrid and crotaline snakes, exhibiting a stronger response to the latter. A follow-up experiment using scents from three different species of pit vipers indicated that hatchling EIS did not discriminate among scents from members of this snake subfamily. After a year in captivity in which EIS were primarily fed mice, the authors retested a subset of the same snakes and found an increased response to mouse scent, while responses to snake scents did not change. Broadly, hatchling EIS have relatively strong responses to scents from snake prey that vary depending on the species, and these responses become less pronounced over time. Given that relatively strong responses typically indicate preference, there are at least two potential explanations for the increased response to mouse scent over time: Either EIS exhibit an innate ontogenetic shift in prey preference towards mice, or their prey preference is influenced by diet in captivity. Given what is known about EIS natural history, the latter explanation is more likely. Overall, this study provides detailed information regarding chemosensory prey discrimination by EIS, with important implications for their ongoing reintroduction efforts.

CAUDAL DISPLAYS BY JUVENILE COLLARED LIZARDS

C. A. Braun and T. A. Baird [2018, Journal of Herpetology 52(2):113-115] note that caudal displays that lure or divert the attention of prey are well known in legless squamates that use sit-and-wait foraging. By contrast, empirical evidence that such tail displays serve to distract prey is lacking in legged lizards. Preliminary observations suggested that juvenile collared lizards (*Crotaphytus collaris*) may give caudal displays when stalking arthropods. Therefore, the authors conducted field experiments involving tethered grasshoppers to test whether free-ranging lizards performed more caudal displays when stalking prey. Results revealed that lizards performed tail displays more frequently and longer when stalking the tethered prey. This appears to be the first experimental support for the hypothesis that legged lizards use caudal displays when stalking prey, perhaps to distract the attention of prey away from the mouth. This study and other published results demonstrate that caudal displays play a role in both foraging and predator avoidance in juvenile collared lizards.

HOG-NOSED SNAKES IN A DISTURBED ECOSYSTEM

M. E. Akresh et al. [2017, *Journal of Herpetology* 51(4):468-476] note that eastern hog-nosed snakes (*Heterodon platirhinos*) are considered a species of conservation concern in the northeast United States because of their association with rare and declining habitats such as pine barrens and shrublands. These are disturbance-dependent habitats that currently require management to persist. The authors studied eastern hog-nosed snakes on a pitch pine–scrub oak barren in western Massachusetts from 2008 to 2013 to describe patterns of space use, habitat selection, and survival of this species and to evaluate the effects of habitat restoration and fuels management. They monitored 12 snakes with radio telemetry during the months of May to October 2008–2010. They examined habitat use versus availability using paired logistic regression analyses in which availability was temporally and spatially explicit in relation to radio-tracked snakes' previous use location and likely movements. They found that radio-tracked snakes significantly avoided closed-canopy forests and power line corridors, and instead primarily used heavily thinned pitch pine and scrub oak barrens. Individuals that used some closed-canopy forested habitat had significantly larger home ranges compared to snakes that used only managed early-successional habitat, congruent with ecological theory that habitat quality can affect home range size. They calculated a probability of 0.61 for adult survival during a 150-d active season, similar to other reports of adult survival for this species, and conclude that fuels reduction and habitat restoration activities, primarily heavy thinning, are increasing the amount of preferred habitat available for this threatened species.

PIGMY RATTLESNAKE FORAGING BEHAVIORS

T. M. Farrell et al. [2018, *Journal of Herpetology* 52(2):156-161] note that predators often evolve specialized behaviors to feed on dangerous prey. Centipedes are widely documented in the diet of viperid snakes, but the behaviors snakes use to consume these dangerous prey have been reported only anecdotally. To determine how prey type influenced snake foraging behaviors, the authors ran laboratory predation trials using 29 field-captured pigmy rattlesnakes (*Sistrurus miliarius*) with centipedes (*Scolopendra viridis*) and skinks (*Scincella lateralis*). In skink trials, pigmy rattlesnakes were significantly more likely to engage in sit-and-wait predation than in centipede trials where active pursuit of prey was frequent. Centipedes were struck by snakes in significantly more trials than skinks and the mean length of strikes directed at centipedes was significantly shorter than for the strikes directed at skinks. Strike latency was significantly lower for centipedes than for skinks. The location on the prey's body where the strike was directed did not differ in skink and centipede trials. The mean time from snake strike to last prey locomotion and to prey ingestion were both significantly longer for centipedes. Pigmy rattlesnakes exhibited several behaviors in centipede trials, including head elevation when approaching prey, that were never observed in skink trials. Centipedes occasionally struck rattlesnakes, but the snakes did not have any apparent injuries. Pigmy rattlesnakes displayed plasticity in foraging behaviors to effectively prey on centipedes. The implications of centipede consumption in vipers merits increased attention given its occurrence in dozens of species.

SPINY SOFTSHELL NESTING ECOLOGY

B. J. Tornabene et al. [2018, *Chelonian Conservation and Biology* 17(1):63-77] describe the nesting locations, timing, behavior and habitat of *Apalone spinifera* in relation to natural and anthropogenic factors in the Missouri River. Nesting followed annual peak river stage, mostly occurred in the afternoon when air temperatures were 25–30°C, and did not occur when human activity was nearby. *Apalone spinifera* nested in June in a year with average discharge (2012), but nested 20 d later in a year with a large flood event (2011). During the average discharge year, 90% of nests were found on islands, but similar proportions of nests were found on island and mainland habitats during the flood year because many islands were inundated. Nests were mostly in mixed-gravel substrates where vegetation cover was sparse or absent. Depredation occurred only after the emergence of hatchlings (~ 60 d after nesting) and more often on nests on the mainland than on islands. Emergence rates were ~ 1.5 times higher in the average year than the flood year, and emergence rates were higher in mixed-gravel nests than in pure-sand nests in 2011. In artificial nests, incubation temperatures averaged ~ 4.3°C higher in mixed-gravel than in sand substrates, and freezing temperatures in winter penetrated to depths greater than the mean egg chamber depth (7.5 cm) for up to 3 wks. Therefore, incubation might be accelerated in mixed-gravel substrates. Accelerated incubation would enhance reproductive success because freezing temperatures preclude hatchlings from overwintering in nests in our study area. Mountain snowmelt-driven hydrology, coupled with the onset of freezing temperatures in autumn, might create a temporal “runoff-freeze squeeze” that limits the successful reproduction of *A. spinifera* in some years. However, high runoff also scoured vegetation from shorelines where *A. spinifera* nested in subsequent years. Natural variation in annual discharge might therefore be crucial to conservation of *A. spinifera* in large rivers.

NEW SPECIES OF MUD TURTLE

M. A. López-Luna et al. [2018, *Chelonian Conservation and Biology* 17(1):2-13] note that the genus *Kinosternon* in Mexico is represented by 12 species of which only 2 inhabit the lowlands of the central Pacific region (*Kinosternon chimalhuaca* and *K. integrum*). Based on 15 standard morphological attributes and coloration patterns of 9 individuals, the authors describe *Kinosternon vogti*, a new microendemic mud turtle species from the central Pacific versant of Mexico. The species is named in honor of Richard Carl “Dick” Vogt. The suite of morphological traits exhibited by *K. vogti* clearly differentiates it from other species within the genus *Kinosternon* by a combination of proportions of plastron and carapace scutes, body size, and a large yellow rostral shield in males. The new species inhabits small streams and ponds in and near the city of Puerto Vallarta, Jalisco. Unfortunately, natural populations are unknown so far. The habitat is damaged by urban growth, and only one female is known. The available information would suggest that *Kinosternon vogti* is one of the most threatened freshwater turtle species. An urgent conservation program is necessary as well as explorations in the area to find viable populations of the species.

MOVEMENTS OF CHIRICAHUA LEOPARD FROGS

R. K. Hinderer et al. [2017, *Journal of Herpetology* 51(4):497-503] note that habitat fragmentation and subsequent disruption of animal movement are responsible for extinctions in some species, including amphibians. Amphibians that can travel across fragmented landscapes may be at lower risk of extinction. Chiricahua leopard frogs are threatened because of fragmentation associated with habitat loss and degradation. The authors sought to identify cues leading frogs to leave perennial ponds and factors related to movement ability of Chiricahua leopard frogs in New Mexico during the summers of 2013 and 2014. Using pitfall traps, they captured frogs leaving ponds and radio-tracked 30 individuals to characterize overland movements. They checked traps and located frogs daily for up to eight weeks. They assessed factors related to the number of frogs leaving ponds using linear models and to distances moved by frogs using linear mixed models. The number of frogs caught was related to rainfall, but not water temperature, and more frogs were found outside ponds at an intermediate level of rainfall. Frogs who left ponds moved an average of 97 m/day, but distances were highly variable among individuals. Sex and size did not explain differences in distances moved, after accounting for individual variation. One individual moved 1,658 m in a day and another 9,888 m over 36 days. These distances are farther than recorded previously for this species. Movement data are essential for developing recovery plans for threatened species, and these findings will inform planning by predicting the ability of populations to cope with the effects of habitat fragmentation and the ability of animals to colonize new habitats.

DIET VARIATION IN A MAP TURTLE

W. Selman and P. V. Lindeman [2018, *Copeia* 106(2):247-254] note that the conservation of imperiled species often depends upon conserving their prey. The yellow-blotched sawback, *Graptemys flavimaculata*, is an imperiled turtle endemic to the Pascagoula River system of Mississippi, USA. The authors investigated diet variability of *G. flavimaculata* relative to site geography, sex, seasons, and size. They captured individuals from May to October in 2007 and 2008 at two distant sites. One site is an inland freshwater tributary (Leaf River, LR) and the other site is coastal and tidally influenced (Pascagoula River, PR). Feces from males ($n = 68$) and females ($n = 74$) were collected and analyzed. Using the Index of Relative Importance (IRI; 0–100 scale, 100 = only item present in all samples), it was found that *G. flavimaculata* are primarily sponge specialists for both males ($IRI_{LR} = 85$, $IRI_{PR} = 91$) and females ($IRI_{LR} = 84$, $IRI_{PR} = 65$). For both sexes, between-site differences were more varied than within-site differences; for the latter, prey items were typically similar for males and females at a single site, but importance varied. Seasonal comparisons suggest that both LR and PR females shifted diets towards mollusks during the spring and fall, possibly associated with increasing energy and calcium for reproduction. Based on the frequency of wood fragments in feces, submerged deadwood appears important for prey species, and therefore, managers should conserve deadwood along river banks (i.e., mature riparian corridors). If channel maintenance is needed, deadwood should be moved toward banks rather than removed to conserve structure for prey species colonization.

COLOR CHANGING BY A CROCODILIAN

A. Staniewicz et al. [2018, *Copeia* 106(2):264-267] note that physiological color change in animals is a rapid process involving the redistribution of pigments within chromatophores, and may have roles in camouflage, communication, or thermoregulation. Although observed in other ectotherms, it has not previously been documented in crocodilians. Using wild and captive Sunda gharials (*Tomistoma schlegelii*), the authors confirmed rapid ventral color change in juveniles, as evidenced by significantly darker ventral scales in illuminated vs. dark environments. They also found that color varied significantly with body size, with larger individuals losing the ability to change color, and by testing environmental factors potentially triggering color change—temperature, ambient light, background color, or stress—they report that illumination was the only factor observed to explain the change. The results reveal an unusual trait not corresponding to established countershading patterns, which provides a basis for further research not only into crocodilian behavioral ecology and physiology, but also into animal camouflage and convergent evolution. These results add further evidence to *Tomistoma* being an evolutionarily distinct lineage of crocodilian, confined to the threatened peat swamp habitats of Southeast Asia.

AN AGGREGATION OF COOTERS

G. R. Johnston et al. [2018, *Chelonian Conservation and Biology* 17(1):54-62] note that animals aggregate to reduce predation risk, facilitate mating, and access resources with patchy distributions. During a long-term study of turtle populations in the Santa Fe River (SFR) ecosystem in northern Florida, the authors observed a large aggregation of turtles at Gilchrist Blue Springs Park (GBSP) in August–October 2013 and again in March–May 2014. On 8 September 2013, they hand-captured 496 turtles of 5 species in GBSP. The Suwannee cooter (*Pseudemys concinna suwanniensis*) was the most abundant species in the sample, with 477 individuals representing all demographic groups. Density of this species was 530 turtles/ha and biomass was 2242 kg/ha. The authors hypothesize that hydrological changes in the SFR basin contributed to the temporary turtle aggregations at GBSP. The 113-km SFR originates as a tannin-stained blackwater stream, but receives input of clear water from ≥ 45 artesian springs in its lower 37 km. Heavy rainfall in the upper SFR basin from Tropical Storm Debby in June 2012 resulted in a large influx of tannic water that overwhelmed the capacity of the springs to dilute the river water. This storm in combination with additional episodes of heavy rainfall and declining spring flows led to an unusually long (34-mo) tannic period in the typically clear lower 37 km of the SFR. The resulting loss of most submerged aquatic macrophytes in the river due to insufficient sunlight may have been the stimulus that led the herbivorous *P. c. suwanniensis* to seek food in one of the few locations that had abundant submerged aquatic vegetation in 2013 and 2014. Turtles previously marked upriver (to 16 km) and downriver (to 4.6 km) from GBSP were in the aggregation, suggesting the individuals gathered at GBSP represented a large portion of the SFR *P. c. suwanniensis* population.

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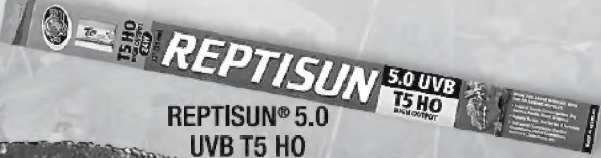
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UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, August 29, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. **Frank Ziegler** will speak about “The Amphibians and Reptiles of Romania.” From May 2005 to August 2007 Frank was a Peace Corps volunteer in Romania, working with some environmental non-government organizations. He was able to observe, photograph and record herps of all kinds and witnessed various behaviors throughout the seasons. From colorful newts, to legless lizards, to rarely seen spadefoot toads, Frank had a unique opportunity to observe herps and was also able to connect with Romanian herpers, both amateur and professional. Romania is a unique place to observe European herp species, it hosts a variety of habitats including the Carpathian Mountains, the lowland plains and forests, the fertile Danube Delta and the unique Machin Mountains.

At the September 26 meeting **George Heinrich**, a field biologist and environmental educator specializing in Florida reptiles, will speak about “The Big Turtle Year: Celebrating Wild Turtles across the United States.”

The regular monthly meetings of the Chicago Herpetological Society take place at Chicago’s newest museum—the **Peggy Notebaert Nature Museum**. This beautiful building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meetings are held the last Wednesday of each month, from 7:30 P.M. through 9:30 P.M. Parking is free on Cannon Drive. A plethora of CTA buses stop nearby.

Board of Directors Meeting

Are you interested in how the decisions are made that determine how the Chicago Herpetological Society runs? And would you like to have input into those decisions? If so, mark your calendar for the next board meeting, to take place on August 17, 2018. The venue is as yet uncertain, so if you wish to attend please email mdloogatch@chicagoherp.org.

MIDWEST HERPETOLOGICAL SYMPOSIUM

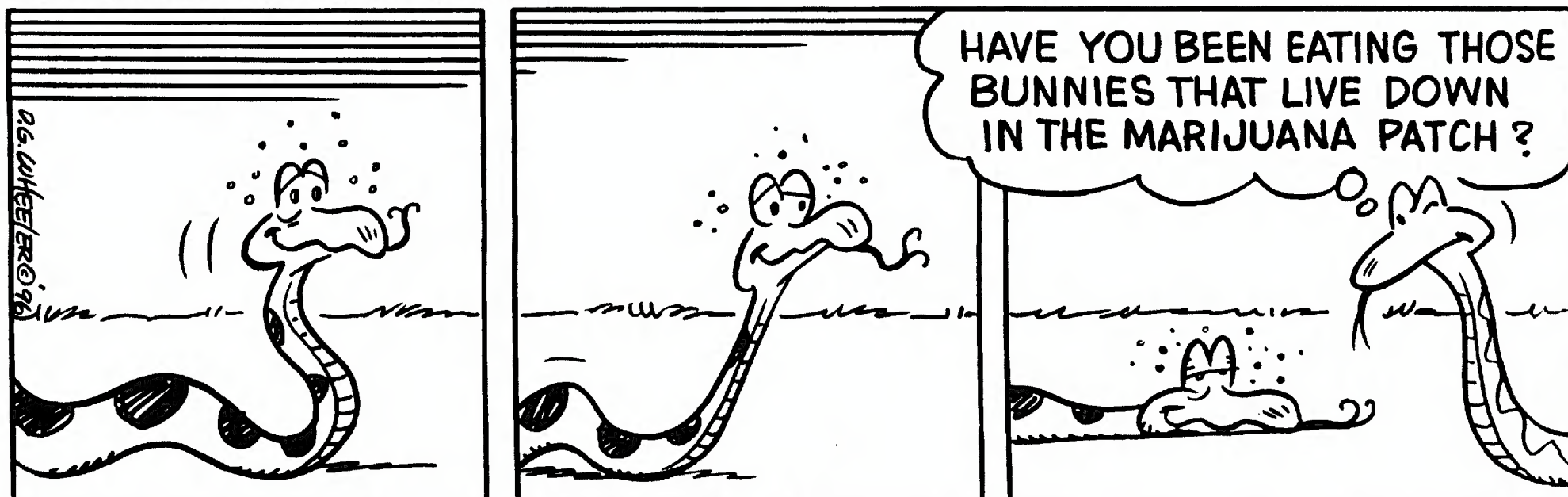
The Hoosier Herpetological Society will host the Midwest Herpetological Symposium this year, September 28–30, at the La Quinta Inn & Suites, 5120 Victory Drive, Indianapolis, Indiana. Speakers and their topics will be:

- Robert Applegate, “Captive Breeding of Colubrid Snakes with an Emphasis on Kingsnakes”
- Dan Dourson, “Reptiles and Amphibians of Belize”
- Nate Engbrecht, “The State of the Herps: An Update on Indiana Herpetology”
- Dave Fogel, “Captive Husbandry and Behavioral Observations of the Mata Mata (*Chelus fimbriatus*)”
- Yatin Kalki, “Herping Southern India”
- Ethan Kessler, “The History and Current Status of Alligator Snapping Turtles in the Midwest”
- David Mifsud, “Amphibian/Reptile Best Management Practices and Conservation”
- Todd Pierson, “Ecology and Evolution of Appalachian Salamanders”
- Michael Price, “Reptile Diversity of Brewster County Texas” and “Squamate Diversity of the Sierra Madre Oriental in Northern Mexico”

The Friday evening icebreaker social will include presentations. Saturday will feature speakers throughout the day, followed by the evening banquet and auction. Sunday will offer a tour of the Indianapolis Zoo. Vendors will offer books and artwork. Live reptiles and amphibians will be on exhibit. And new this year will be the presentation of the Young Herpetologist Award.

Online registration and detailed information can be found on the HHS website: <www.hoosierherpsoc.org>

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